

## 1. Scope of TE Materials

EN		ASME		ASTM		JIS		TE
Standard	Type of Steel	Standard	Type of Steel	Standard	Type of Steel	Standard	Type of Steel	Type of Steel
EN10028-7 <i>EN10088-2</i>	X5CrNi18-10 1.4301	ASME SA240 ASME SA249 ASME SA312	304 TP304	ASTM A240 ASTM A249 ASTM A312 <i>ASTM A666</i> <i>ASTM A554</i>	304 TP304 <i>MT304</i>	G4304 G4305 G3459 G3463 <i>G4313</i> <i>G3446</i>	SUS304 SUS304TP SUS304TB <i>SUS304TK</i> <i>SUS304CSP</i>	304
EN10028-7 <i>EN10088-2</i>	X2CrNi18-9 1.4307	ASME SA240 ASME SA249	304L	ASTM A240 ASTM A249	304L	--	--	304L1
--	--	ASME SA312	TP304L	ASTM A312 <i>ASTM A554</i>	TP304L <i>MT304</i>	--	--	304L2
--	--	--	--	--	--	G4304 G4305 G3459 G3463	SUS304L SUS304LTP SUS304LTB	304L3
<i>EN10088-2</i>	<i>X10CrNi18-8</i> <i>1.4310--</i>	ASME SA240	301	ASTM A240	301	G4304 G4305	SUS301	301
EN10028-7 <i>EN10088-2</i>	X2CrNi18-7 1.4318	ASME SA240	301L	ASTM A240	301L	G4304 G4305	SUS301L	301L
EN10028-7 <i>EN10088-2</i>	X2CrNi18-7 1.4318	ASME SA240	301LN	ASTM A240	301LN			301LN

<i>EN10088-2</i>	X12CrMnNiN17-7-5 1.4372	ASME SA240 ASME SA249	201	ASTM A240 ASTM A249	201	--	--	TE202-1
--	--	--	--	--	--	--	--	<i>TE201</i> <i>TE201A</i>
--	--	--	--	--	--	--	--	<i>TE202</i> <i>TE202A</i>

**Remark :** *Italic number means the standard or type of steel being applied for general purpose only.*

Product Form	Thickness (mm)	Width (mm)	Surface Finish		
			EN10028-7	ASTM A480	TE
Slab of stainless steel	Slab:200mm	For Mill Edge:	1U	--	BHR
Hot-Rolled strip/ sheet of stainless steel	Hot-Rolled product:	1030mm	1D	NO.1	NO.1
Cold-Rolled strip/ sheet of stainless steel	1.75~6.20mm	1250mm	2D	2D	2D
	Cold-Rolled product:	1280mm	2B	2B	2B
	0.20~3.10mm	For Slit Edge:	2R	BA	BA
		1000mm			
		1220mm			
		1250mm			

## 2. Specification and the Referenced Standard

### (a) Chemical composition (cast analysis)

Table 1.1 Chemical composition for TE 304 (% by mass)												
Standard	Type of Steel	C	Si	Mn max	P max	S max	N	Cr	Cu	Mo	Ni	Remark
EN 10028-7	X5CrNi18-10 1.4301	≤0.07	≤1.00	200	0.045	0.015	≤0.10	17.50-19.50	-	-	8.00-10.50	Pressure purpose
EN 10088-2	X5CrNi18-10 1.4301	≤0.07	≤1.00	200	0.045	0.015	≤0.10	17.50-19.50	-	-	8.00-10.50	General purpose
ASTM A240	304 (S30400)	≤0.07	≤0.75	200	0.045	0.030	≤0.10	17.50-19.50	-	-	8.00-10.50	Pressure purpose & General purpose
ASME SA240	304 (S30400)	≤0.08	≤0.75	200	0.045	0.030	≤0.10	18.00-20.00	-	-	8.00-10.50	Pressure purpose ASME SA240-2007
©ASTM A249	TP304	≤0.08	≤1.00	200	0.045	0.030	-	18.00-20.00	-	-	8.00-11.00	boiler purpose
©ASME SA249	TP304	≤0.08	≤1.00	200	0.045	0.030	≤0.10	18.00-20.00	-	-	8.00-11.00	boiler purpose
©ASTM A312	TP304	≤0.08	≤1.00	200	0.045	0.030	≤0.10	18.00-20.00	-	-	8.00-11.00	pipe purpose
©ASME SA312	TP304	≤0.08	≤1.00	200	0.045	0.030	-	18.00-20.00	-	-	8.00-11.00	pipe purpose
ASTM A666	304 (S30400)	≤0.08	≤0.75	200	0.045	0.030	≤0.10	18.00-20.00	-	-	8.00-10.50	Cold worked purpose
©ASTM A554	MT-304	≤0.08	≤1.00	200	0.040	0.030		18.00-20.00	-	-	8.00-11.00	Mechanical Tubing purpose

JIS G4304	SUS 304	≤0.08	≤1.00	200	0.045	0.030	-	18.00-20.00	-	-	8.00-10.50	Pressure purpose & General purpose
JIS G4305	SUS 304	≤0.08	≤1.00	200	0.045	0.030	-	18.00-20.00	-	-	8.00-10.50	Pressure purpose & General purpose
JIS G4313	SUS 304-CSP	≤0.08	≤1.00	200	0.045	0.030	-	18.00-20.00	-	-	8.00-10.50	Spring purpose
◎JIS G3459	SUS 304TP	≤0.08	≤1.00	200	0.045	0.030	-	18.00-20.00	-	-	8.00-11.00	pipe purpose
◎JIS G3463	SUS 304TB	≤0.08	≤1.00	200	0.040	0.030	-	18.00-20.00	-	-	8.00-11.00	boiler purpose
◎JIS G3446	SUS 304TK	≤0.08	≤1.00	200	0.040	0.030	-	18.00-20.00	-	-	8.00-11.00	Structure purpose
◎CNS 6331	304TP	≤0.08	≤1.00	200	0.045	0.030	-	18.00-20.00	-	-	8.00-10.50	pipe purpose
CNS 8497	304	≤0.08	≤1.00	200	0.045	0.030	-	18.00-20.00	-	-	8.00-10.50	Pressure purpose & General purpose
CNS 8499	304	≤0.08	≤1.00	200	0.045	0.030	-	18.00-20.00	-	-	8.00-10.50	Pressure purpose & General purpose
CNS 8399	304-CSP	≤0.08	≤1.00	200	0.045	0.030	-	18.00-20.00	-	-	8.00-10.50	Spring purpose
◎CNS 5802	304TK	≤0.08	≤1.00	200	0.040	0.030	-	18.00-20.00	-	-	8.00-11.00	Structure purpose
◎CNS 7383	304TB	≤0.08	≤1.00	200	0.040	0.030	-	18.00-20.00	-	-	8.00-11.00	boiler purpose
TE Sales	304	≤0.07	≤0.75	200	0.040a 0.045b	0.015	≤0.10	18.00-19.50	-	-	8.00-10.50	a : for pipe b : for strip

**Table 1.2 Chemical composition for TE 304L1 (% by mass)**

Standard	Type of Steel	C	Si	Mn max	P max	S max	N	Cr	Cu	Mo	Ni	Remark
EN 10028-7	X2CrNi18-9, 1.4307	≤0.03	≤1.00	2.00	0.045	0.015	≤0.10	17.50-19.50	-	-	8.00-10.50	Pressure purpose
EN 10088-2	X2CrNi18-9, 1.4307	≤0.03	≤1.00	2.00	0.045	0.015	≤0.10	17.50-19.50	-	-	8.00-10.50	General purpose
ASTM A240	304L (S30403)	≤0.03	≤0.75	2.00	0.045	0.030	≤0.10	17.50-19.50	-	-	8.00-12.00	Pressure purpose & General purpose
ASME SA240	304L (S30403)	≤0.03	≤0.75	2.00	0.045	0.030	≤0.10	18.00-20.00	-	-	8.00-12.00	Pressure purpose
◎ASTM A249	TP304L	≤0.03	≤1.00	2.00	0.045	0.030	-	18.00-20.00	-	-	8.00-12.00	boiler purpose
◎ASME SA249	TP304L	≤0.03	≤1.00	2.00	0.045	0.030	≤0.10	18.00-20.00	-	-	8.00-12.00	boiler purpose
CNS 8499	A304L	≤0.03	≤0.75	2.00	0.045	0.030	≤0.10	18.00-20.00	-	-	8.00-12.00	Pressure purpose & General purpose
TE Sales	304L1	≤0.03	≤0.75	2.00	0.045	0.015	≤0.10	18.00-19.50	-	-	8.00-10.50	

**Table 1.3 Chemical composition for TE 304L2 (% by mass)**

Standard	Type of Steel	C	Si	Mn max	P max	S max	N	Cr	Cu	Mo	Ni	Remark
©ASME SA312	TP304L (S30403)	≤0.035	≤1.00	2.00	0.045	0.030	-	18.00-20.00	-	-	8.00-13.00	pipe purpose
©ASTM A312	TP304L (S30403)	≤0.035	≤1.00	2.00	0.045	0.030	-	18.00-20.00	-	-	8.00-13.00	pipe purpose
©ASTM A554	MT-304L	≤0.035	≤1.00	2.00	0.040	0.030	-	18.00-20.00	-	-	8.00-13.00	Mechanical Tubing purpose
©CNS 6331	A304LTP	≤0.035	≤1.00	2.00	0.045	0.030	-	18.00-20.00	-	-	8.00-13.00	pipe purpose
TE Sales	304L2	≤0.035	≤1.00	2.00	0.040a 0.045b	0.030	-	18.00-20.00	-	-	8.00-13.00	a : for mechanical tubing b : for pipe

Table 1.4 Chemical composition for TE 304L3 (% by mass)												
Standard	Type of Steel	C	Si	Mn max	P max	S max	N	Cr	Cu	Mo	Ni	Remark
JIS G4304	SUS 304L	≤0.03	≤1.00	2.00	0.045	0.030	-	18.00-20.00	-	-	9.00-13.00	Pressure purpose & General purpose
JIS G4305	SUS 304L	≤0.03	≤1.00	2.00	0.045	0.030	-	18.00-20.00	-	-	9.00-13.00	Pressure purpose & General purpose
◎JIS G3459	SUS 304LTP	≤0.03	≤1.00	2.00	0.045	0.030	-	18.00-20.00	-	-	9.00-13.00	pipe purpose
◎JIS G3463	SUS 304LTB	≤0.03	≤1.00	2.00	0.040	0.030	-	18.00-20.00	-	-	9.00-13.00	boiler purpose
CNS 8497	304L	≤0.03	≤1.00	2.00	0.045	0.030	-	18.00-20.00	-	-	9.00-13.00	Pressure purpose & General purpose
CNS 8499	304L	≤0.03	≤1.00	2.00	0.045	0.030	-	18.00-20.00	-	-	9.00-13.00	Pressure purpose & General purpose
◎CNS 6331	304LTP	≤0.03	≤1.00	2.00	0.045	0.030	-	18.00-20.00	-	-	9.00-13.00	pipe purpose
◎CNS 7383	304LTB	≤0.03	≤1.00	2.00	0.040	0.030	-	18.00-20.00	-	-	9.00-13.00	boiler purpose
TE Sales	304L3	≤0.030	≤1.00	2.00	0.040a 0.045b	0.030	-	18.00-20.00	-	-	9.00-13.00	a : for pipe b : for strip

**Table 1.5 Chemical composition for TE 301 (% by mass)**

Standard	Type of Steel	C	Si	Mn max	P max	S max	N	Cr	Cu	Mo	Ni	Remark
EN 10088-2	X10CrNi18-8 1.4310	0.05~ 0.15	≤2.00	2.00	0.045	0.015	≤0.11	16.00-19.00		≤0.80	6.00-9.50	General purpose
ASTM A240	301 (S30100)	≤0.15	≤1.00	2.00	0.045	0.030	≤0.10	16.00-18.00	-	-	6.00-8.00	Pressure purpose & General purpose
ASME SA240	301 (S30100)	≤0.15	≤1.00	2.00	0.045	0.030	≤0.10	16.00-18.00	-	-	6.00-8.00	Pressure purpose
JIS G4304	SUS 301	≤0.15	≤1.00	2.00	0.045	0.030	-	16.00-18.00	-	-	6.00-8.00	Pressure purpose & General purpose
JIS G4305	SUS 301	≤0.15	≤1.00	2.00	0.045	0.030	-	16.00-18.00	-	-	6.00-8.00	Pressure purpose & General purpose
CNS 8497	301	≤0.15	≤1.00	2.00	0.045	0.030	-	16.00-18.00	-	-	6.00-8.00	Pressure purpose & General purpose
CNS 8499	301	≤0.15	≤1.00	2.00	0.045	0.030	-	16.00-18.00	-	-	6.00-8.00	Pressure purpose & General purpose
CNS 8399	301-CSP	≤0.15	≤1.00	2.00	0.045	0.030	-	16.00-18.00	-	-	6.00-8.00	Spring purpose
TE Sales	301	0,05~ 0,15	≤1.00	2.00	0.045	0.015	≤0.10	16.00-18.00	-	≤0.80	6.00-8.00	



**Table 1.6 Chemical composition for TE 301L (% by mass)**

Standard	Type of Steel	C	Si	Mn max	P max	S max	N	Cr	Cu	Mo	Ni	Remark
EN 10028-7	X2CrNiN18-7, 1.4318	≤0.030	≤1.00	2.00	0.045	0.015	0.10~ 0.20	16.50-18.50	-	-	6.00-8.00	Pressure purpose
EN 10088-2	X2CrNiN18-7, 1.4318	≤0.030	≤1.00	2.00	0.045	0.015	0.10~ 0.20	16.50-18.50	-	-	6.00-8.00	General purpose
ASTM A240	301L (S30103)	≤0.030	≤1.00	2.00	0.045	0.030	≤0.20	16.00-18.00	-	-	6.00-8.00	Pressure purpose & General purpose
ASME SA240	301L (S30103)	≤0.030	≤1.00	2.00	0.045	0.030	≤0.20	16.00-18.00	-	-	6.00-8.00	Pressure purpose
JIS G4304	SUS 301L	≤0.030	≤1.00	2.00	0.045	0.030	≤0.20	16.00-18.00	-	-	6.00-8.00	Pressure purpose & General purpose
JIS G4305	SUS 301L	≤0.030	≤1.00	2.00	0.045	0.030	≤0.20	16.00-18.00	-	-	6.00-8.00	Pressure purpose & General purpose
CNS 8497	301L	≤0.030	≤1.00	2.00	0.045	0.030	≤0.20	16.00-18.00	-	-	6.00-8.00	Pressure purpose & General purpose
CNS 8499	301L	≤0.030	≤1.00	2.00	0.045	0.030	≤0.20	16.00-18.00	-	-	6.00-8.00	Pressure purpose & General purpose
TE Sales	301L	≤0.030	≤1.00	2.00	0.045	0.015	0.10~ 0.20	16.50-18.00	-	-	6.00-8.00	

**Table 1.7 Chemical composition for TE 301LN (% by mass)**

Standard	Type of Steel	C	Si	Mn max	P max	S max	N	Cr	Cu	Mo	Ni	Remark
EN 10028-7	X2CrNiN18-7, 1.4318	≤0.030	≤1.00	2.00	0.045	0.015	0.10~ 0.20	16.50-18.50	-	-	6.00-8.00	Pressure purpose
EN 10088-2	X2CrNiN18-7, 1.4318	≤0.030	≤1.00	2.00	0.045	0.015	0.10~ 0.20	16.50-18.50	-	-	6.00-8.00	General purpose
ASTM A240	301LN (S30153)	≤0.30	≤1.00	2.00	0.045	0.030	0.07~ 0.20	16.00-18.00	-	-	6.00-8.00	Pressure purpose & General purpose
ASME SA240	301LN (S30153)	≤0.30	≤1.00	2.00	0.045	0.030	0.07~ 0.20	16.00-18.00	-	-	6.00-8.00	Pressure purpose
TE Sales	301LN	≤0.030	≤1.00	2.00	0.045	0.015	0.10~ 0.20	16.50-18.00	-	-	6.00-8.00	

**Table 1.8 Chemical composition for TE 202-1 (% by mass)**

Standard	Type of Steel	C	Si	Mn	P max	S max	N	Cr	Cu	Mo	Ni	Remark
EN 10088-2	X12CrMnNiN17-7-5 1.4372	≤0.15	≤1.00	5.5~ 7.5	0.045	0.015	0.05~ 0.25	16.00-18.00	-	-	3.50~5.50	General purpose
ASTM A240	201 (S20100)	≤0.15	≤1.00	5.5~ 7.5	0.06	0.030	≤0.25	16.00-18.00	-	-	3.50~5.50	Pressure purpose & General purpose
ASME SA240	201 (S20100)	≤0.15	≤1.00	5.5~ 7.5	0.06	0.030	≤0.25	16.00-18.00	-	-	3.50~5.50	Pressure purpose
©ASTM A249	201 (S20100)	≤0.15	≤1.00	5.5~ 7.5	0.06	0.030	≤0.25	16.00-18.00	-	-	3.50~5.50	Boiler purpose
©ASME SA249	201 (S20100)	≤0.15	≤1.00	5.5~ 7.5	0.06	0.030	≤0.25	16.00-18.00	-	-	3.50~5.50	Boiler purpose
CNS 8497	201	≤0.15	≤1.00	5.5~ 7.5	0.06	0.030	≤0.25	16.00-18.00	-	-	3.50~5.50	Pressure purpose & General purpose
CNS 8499	201	≤0.15	≤1.00	5.5~ 7.5	0.06	0.030	≤0.25	16.00-18.00	-	-	3.50~5.50	Pressure purpose & General purpose
TE Sales	TE202-1	≤0.15	≤1.00	5.5~ 7.5	0.045	0.015	0.05~ 0.25	17.00-18.00	-	-	3.50~5.50	

**Table 1.9 Chemical composition for TE 2XX (% by mass)**

Standard	Type of Steel	C	Si	Mn	P max	S max	N	Cr	Cu	Mo	Ni	Remark
	<b>TE201</b>	≤0.15	≤1.00	8~ 10	0.06	0.030	≤0.25	14.00-17.00	1.3~ 2.0	-	0.90~1.50	General purpose
	<b>TE201A</b>	≤0.15	≤1.00	8~ 10	0.06	0.030	≤0.25	14.00-17.00	1.3~ 2.0	-	1.50~2.50	General purpose
	<b>TE202</b>	≤0.15	≤1.00	6.0~ 9.0	0.06	0.030	≤0.25	14.50-17.00	1.3~ 1.8	-	3.00~5.00	General purpose
	<b>TE202A</b>	≤0.15	≤1.00	6.0~ 9.0	0.06	0.030	≤0.25	14.50-17.00	1.3~ 1.8	-	4.00~5.00	General purpose

**(b) Mechanical Properties at room temperature**

Table 2.1 Mechanical Properties for TE 304																
Standard	Type of Steel	Product Form <sup>a</sup>	Thickness (Max.)	0.2% proof strength	1.0% proof strength	Tensile Strength R <sub>m</sub>	Elongation after fracture (Min.)		Impact energy <sup>d</sup> (Min.) (ISO-V)			Resistance to Inter-granular corrosion <sup>e</sup>		Hardness (Max.)		
				R <sub>p0,2</sub>	R <sub>p1.0</sub>		A <sub>60mm</sub> <sup>b</sup>	A <sup>c</sup>	KV	J	in the delivery condition	in the sensitized condition	HBW	HRB	HV	
				T<3mm	T≥3mm	at 20 °C	at -196 °C	(Long.)								(Tr.)
				MPa (Tr.)	MPa (Tr.)	% (Tr.)										
EN 10028-7	X5CrNi18-10 1.4301	C	8	≥230	≥260	540~750	45	45	100	60	60	Yes	No	—	—	—
		H	13.5	≥210	≥250	520~720										
EN 10088-2	X5CrNi18-10 1.4301	C	8	≥230	≥260	540~750	45	45	100	60	—	Yes	No	—	—	—
		H	13.5	≥210	≥250	520~720										
ASTM A240	304(S30400)	—	—	≥205	—	≥515	40	40	—	—	—	—	—	201	92	—
ASME SA240	304(S30400)	—	—	≥205	—	≥515	40	40	—	—	—	—	—	201	92	—
ASTM A666	304(S30400)	—	—	≥205	—	≥515	40	40	—	—	—	—	—	201	92	—
JIS G4304	SUS 304	—	—	≥205	—	≥520	40	40	—	—	—	—	—	187	90	200
JIS G4305	SUS 304	—	—	≥205	—	≥520	40	40	—	—	—	—	—	187	90	200
CNS 8497	304	—	—	≥205	—	≥520	40	40	—	—	—	—	—	187	90	200
CNS 8499	304	—	—	≥205	—	≥520	40	40	—	—	—	—	—	187	90	200

<b>TE Sales (For EN)</b>	<b>304</b>	—	—	≥230	—	540~720	45	45	—	—	—	—	—	—	90	—
<b>TE Sales (For Others)</b>	<b>304</b>	—	—	≥205	—	≥520	40	40	—	—	—	—	—	—	90	—

Standard applied for

Pressure purpose : **EN 10028-7** 、 **ASTM A240** 、 **ASME SA240**

General purpose : **EN 10088-2** 、 **JIS G4304** 、 **JIS G4305** 、 **CNS 8497** 、 **CNS 8499**

Cold worked purpose : **ASTM A666**

**Table 2.2 Mechanical Properties for TE 304L1**

Standard	Type of Steel	Product Form <sup>a</sup>	Thickness (Max.)	0.2% proof strength	1.0% proof strength	Tensile Strength R <sub>m</sub>	Elongation after fracture (Min.)		Impact energy <sup>d</sup> (Min.) (ISO-V) KV J			Resistance to Inter-granular corrosion <sup>e</sup>		Hardness (Max.)		
				R <sub>p0.2</sub>	R <sub>p1.0</sub>		A <sub>80mm</sub> <sup>b</sup>	A <sup>c</sup>	at 20 °C		at -196 °C	in the delivery condition	in the sensitized condition	HBW	HRB	HV
				MPa (Tr.)	MPa (Tr.)	% (Tr.)	% (Tr.)	(Long.)	(Tr.)	(Tr.)						
EN 10028-7	X2CrNi18-9, 1.4307	C	8	220	250	520~700	45	45	100	60	60	Yes	Yes	—	—	—
		H	13.5	200	240											
EN 10088-2	X2CrNi18-9, 1.4307	C	8	220	250	520~700	45	45	—	—	—	Yes	Yes	—	—	—
		H	13.5	200	240	500~700			100	60	—					
ASTM A240	304L(S30403)	—	—	≥170	—	≥485	40	40	—	—	—	—	—	201	92	—
ASME SA240	304L(S30403)	—	—	≥170	—	≥485	40	40	—	—	—	—	—	201	92	—
CNS 8499	A304L	—	—	≥170	—	≥485	40	40	—	—	—	—	—	—	90	—
TE Sales (For EN)	304L1	—	—	≥220	—	520~700	45	45	—	—	—	—	—	—	90	—
TE Sales (For Others)	304L1	—	—	≥170	—	≥485	40	40	—	—	—	—	—	—	90	—

Standard applied for  
 Pressure purpose : EN 10028-7 、 ASTM A240 、 ASME SA240  
 General purpose : EN 10088-2 、 CNS 8499

**Table 2.3 Mechanical Properties for TE 304L2**

Standard	Type of Steel	Product Form <sup>a</sup>	Thickness (Max.)	0.2% proof strength	1.0% proof strength	Tensile Strength R <sub>m</sub>	Elongation after fracture (Min.)		Impact energy <sup>d</sup> (Min.) (ISO-V) KV J			Resistance to Inter-granular corrosion <sup>e</sup>		Hardness (Max.)		
				R <sub>p0.2</sub>	R <sub>p1.0</sub>		A <sub>80mm</sub> <sup>b</sup>	A <sup>c</sup>	at 20 °C		at -196°C	in the delivery condition	in the sensitized condition	HBW	HRB	HV
					mm	MPa (Tr.)	MPa (Tr.)	% (Tr.)	(Long.)	(Tr.)	(Tr.)					
◎ASME SA312	TP304L(S30403)	—	—	≥170	—	≥485	—	—	—	—	—	—	—	—	—	—
◎ASTM A312	TP304L(S30403)	—	—	≥170	—	≥485	—	—	—	—	—	—	—	—	—	—
◎ASTM A554	MT-304L	—	—	≥172	—	≥483	35	35	—	—	—	—	—	192	90	—
◎CNS 6331	A304LTP	—	—	≥170	—	≥485	25	25	—	—	—	—	—	—	—	—
TE Sales	304L2	—	—	≥170	—	≥485	40	40	—	—	—	—	—	—	90	—

Standard applied for  
 Pipe purpose : **ASME SA312**、**ASTM A312**、**CNS 6331**  
 Structure purpose : **ASTM A554**



**Table 2.4 Mechanical Properties for TE 304L3**

Standard	Type of Steel	Product Form <sup>a</sup>	Thickness (Max.)	0.2% proof strength	1.0% proof strength	Tensile Strength R <sub>m</sub>	Elongation after fracture (Min.)		Impact energy <sup>d</sup> (Min.) (ISO-V) KV J			Resistance to Inter-granular corrosion <sup>e</sup>		Hardness (Max.)		
				R <sub>p0.2</sub>	R <sub>p1.0</sub>		A <sub>80mm</sub> <sup>b</sup>	A <sup>c</sup>	at 20 °C		at -196 °C	in the delivery condition	in the sensitized condition	HBW	HRB	HV
				mm	MPa (Tr.)	MPa (Tr.)	% (Tr.)	(Long.)	(Tr.)	(Tr.)						
JIS G4304	SUS 304L	—	—	≥175	—	≥480	40	40	—	—	—	—	—	187	90	200
JIS G4305	SUS 304L	—	—	≥175	—	≥480	40	40	—	—	—	—	—	187	90	200
CNS 8497	304L	—	—	≥175	—	≥480	40	40	—	—	—	—	—	187	90	200
CNS 8499	304L	—	—	≥175	—	≥480	40	40	—	—	—	—	—	187	90	200
TE Sales	304L3	—	—	≥175	—	≥480	40	40	—	—	—	—	—	—	90	—

Standard applied for

General purpose : JIS G4304 、 JIS G4305 、 CNS 8497 、 CNS 8499

**Table 2.5 Mechanical Properties for TE 301**

Standard	Type of Steel	Product Form <sup>a</sup>	Thickness (Max.)	0.2% proof strength	1.0% proof strength	Tensile Strength R <sub>m</sub>	Elongation after fracture (Min.)		Impact energy <sup>d</sup> (Min.) (ISO-V) KV J			Resistance to Inter-granular corrosion <sup>e</sup>		Hardness (Max.)		
				R <sub>p0.2</sub>	R <sub>p1.0</sub>		A <sub>80mm</sub> <sup>b</sup>	A <sup>c</sup>	at 20 °C		at -196 °C	in the delivery condition	in the sensitized condition	HBW	HRB	HV
				T<3mm	T≥3mm	(Long.)	(Tr.)	(Tr.)								
EN 10088-2	X10CrNi18-8 1.4310	C	8	250	280	600~950	40	40	—	—	—	No	No	—	—	—
ASTM A240	301(S30100)	—	—	≥205	—	≥515	40	40	—	—	—	—	—	217	95	—
ASME SA240	301(S30100)	—	—	≥205	—	≥515	40	40	—	—	—	—	—	217	95	—
JIS G4304	SUS 301	—	—	≥205	—	≥520	40	40	—	—	—	—	—	207	95	218
JIS G4305	SUS 301	—	—	≥205	—	≥520	40	40	—	—	—	—	—	207	95	218
CNS 8497	301	—	—	≥205	—	≥520	40	40	—	—	—	—	—	207	95	218
CNS 8499	301	—	—	≥205	—	≥520	40	40	—	—	—	—	—	207	95	218
TE Sales (For EN)	301	—	—	≥250	—	600~950	40	40	—	—	—	—	—	—	95	—
TE Sales (For Others)	301	—	—	≥205	—	≥520	40	40	—	—	—	—	—	—	95	—

Standard applied for  
 Pressure purpose : ASTM A240 、 ASME SA240  
 General purpose : EN 10088-2 、 JIS G4304 、 JIS G4305 、 CNS 8497 、 CNS 8499

**Table 2.6 Mechanical Properties for TE 301L**

Standard	Type of Steel	Product Form <sup>a</sup>	Thickness (Max.)	0.2% proof strength	1.0% proof strength	Tensile Strength R <sub>m</sub>	Elongation after fracture (Min.)		Impact energy <sup>d</sup> (Min.) (ISO-V)			Resistance to Inter-granular corrosion <sup>e</sup>		Hardness (Max.)			
				R <sub>p0.2</sub>	R <sub>p1.0</sub>		A <sub>80mm</sub> <sup>b</sup>	A <sup>c</sup>	KV	J	in the delivery condition	in the sensitized condition	HBW	HRB	HV		
				MPa(Tr.)		MPa(Tr.)		% (Tr.)								at 20 °C	
			mm														
							(Long.)	(Tr.)	(Tr.)								
<b>ASTM A240</b>	<b>301L(S30103)</b>	—	—	≥220	—	≥550	45	45	—	—	—	—	—	241	100	—	
<b>ASME SA240</b>	<b>301L(S30103)</b>	—	—	≥220	—	≥550	45	45	—	—	—	—	—	241	100	—	
<b>JIS G4304</b>	<b>SUS 301L</b>	—	—	≥215	—	≥550	45	45	—	—	—	—	—	207	90	218	
<b>JIS G4305</b>	<b>SUS 301L</b>	—	—	≥215	—	≥550	45	45	—	—	—	—	—	207	90	218	
<b>CNS 8497</b>	<b>301L</b>	—	—	≥215	—	≥550	45	45	—	—	—	—	—	187	90	200	
<b>CNS 8499</b>	<b>301L</b>	—	—	≥215	—	≥550	45	45	—	—	—	—	—	207	90	218	
<b>TE Sales (For EN)</b>	<b>301L</b>	—	—	The mechanical properties of EN 10088-2 <b>X2CrNiN18-7 1.4318</b> shall be in accordance with ASTM A240													
<b>TE Sales</b>	<b>301L</b>	—	—	≥220	—	≥550	45	45	—	—	—	—	—	—	90	—	

Standard applied for

Pressure purpose : **EN 10028-7** 、 **ASTM A240** 、 **ASME SA240**

General purpose : **EN 10088-2**

**Table 2.7 Mechanical Properties for TE 301LN**

Standard	Type of Steel	Product Form <sup>a</sup>	Thickness (Max.) mm	0.2% proof strength	1.0% proof strength	Tensile Strength R <sub>m</sub>	Elongation after fracture (Min.)		Impact energy <sup>d</sup> (Min.) (ISO-V) KV J			Resistance to Inter-granular corrosion <sup>e</sup>		Hardness (Max.)		
				R <sub>p0.2</sub>	R <sub>p1.0</sub>		A <sub>80mm</sub> <sup>b</sup> T<3mm	A <sup>c</sup> T≥3mm	at 20 °C		at -196°C	in the delivery condition	in the sensitized condition	HBW	HRB	HV
				MPa (Tr.)	MPa (Tr.)	% (Tr.)		(Long.)	(Tr.)	(Tr.)						
ASTM A240	301LN(S30153)	—	—	≥240	—	≥550	45	45	—	—	—	—	—	241	100	—
ASME SA240	301LN(S30153)	—	—	≥240	—	≥550	45	45	—	—	—	—	—	241	100	—
TE Sales (For EN)	301LN	—	—	The mechanical properties of EN 10088-2 X2CrNiN18-7 1.4318 shall be in accordance with ASTM A240												
TE Sales	301LN	—	—	≥240	—	≥550	45	45	—	—	—	—	—	—	100	—

Standard applied for  
 Pressure purpose : EN 10028-7 、 ASTM A240 、 ASME SA240  
 General purpose : EN 10088-2

**Table 2.8 Mechanical Properties for TE 202-1**

Standard	Type of Steel	Product Form <sup>a</sup>	Thickness (Max.)	0.2% proof strength	1.0% proof strength	Tensile Strength R <sub>m</sub>	Elongation after fracture (Min.)		Impact energy <sup>d</sup> (Min.) (ISO-V) KV J			Resistance to Inter-granular corrosion <sup>e</sup>		Hardness (Max.)		
				R <sub>p0.2</sub>	R <sub>p1.0</sub>		A <sub>80mm</sub> <sup>b</sup>	A <sup>c</sup>	at 20 °C		at -196 °C	in the delivery condition	in the sensitized condition	HBW	HRB	HV
				MPa (Tr.)		MPa (Tr.)		% (Tr.)		(Long)	(Tr.)	(Tr.)				
ASTM A240	201-1(S20100)*	—	—	≥260	—	≥515	40	40	—	—	—	—	—	217	95	—
ASTM A240	201-2(S20100)*	—	—	≥310	—	≥655	40	40	—	—	—	—	—	241	100	—
ASME SA240	201-1(S20100)*	—	—	≥260	—	≥515	40	40	—	—	—	—	—	217	95	—
ASME SA240	201-2(S20100)*	—	—	≥310	—	≥655	40	40	—	—	—	—	—	241	100	—
CNS 8497	201	—	—	≥245	—	≥640	40	40	—	—	—	—	—	241	100	253
CNS 8499	201	—	—	≥245	—	≥640	40	40	—	—	—	—	—	241	100	253
TE Sales (for ASTM Gr.201-2)	TE202-1	—	—	≥310	—	≥655	40	40	—	—	—	—	—	217	95	—
TE Sales (for others)	TE202-1	—	—	≥260	—	≥640	40	40	—	—	—	—	—	241	100	—
TE Sales (For EN)	TE202-1	—	—	The mechanical properties of EN 10088-2 X12CrMnNiN17-7-5 1.4372 shall be in accordance with ASTM A240												

Standard applied for

Pressure purpose : **ASTM A240** 、 **ASME SA240**

General purpose : **EN 10088-2** 、 **CNS 8497** **CNS 8499**

- \* Type 201 is generally produced with a chemical composition balanced for rich side (Type 201-1) or lean side (Type 201-2) austenite stability depending on the properties required for specific applications.

Table 2.9 Mechanical Properties for TE 2XX																
Standard	Type of Steel	Product Form <sup>a</sup>	Thickness (Max.)	0.2% proof strength	1.0% proof strength	Tensile Strength R <sub>m</sub>	Elongation after fracture (Min.)		Impact energy <sup>d</sup> (Min.) (ISO-V) KV J			Resistance to Inter-granular corrosion <sup>e</sup>		Hardness (Max.)		
				R <sub>p0,2</sub>	R <sub>p1.0</sub>		A <sub>80mm</sub> <sup>b</sup>	A <sup>c</sup>	at 20 °C		at -196 °C	in the delivery condition	in the sensitized condition	HBW	HRB	HV
				MPa (Tr.)		MPa (Tr.)		% (Tr.)		(Long)	(Tr)	(Tr)				
	TE201	—	—	≥310	—	≥655	30	30	—	—	—	—	—	—	105	—
	TE201A	—	—	≥310	—	≥655	35	35	—	—	—	—	—	—	105	—
	TE202	—	—	≥260	—	≥620	40	40	—	—	—	—	—	—	100	—
	TE202A	—	—	≥260	—	≥620	40	40	—	—	—	—	—	—	100	—

**Remarks (for Table 2-1 to Table 2-9):**

a : C=cold rolled strip ; H=hot rolled Strip ; P=hot rolled plate

b : The values are related to test pieces with a gauge length of 80mm and a width of 20mm. Test pieces with a gauge length of 50mm and a width of 12.5mm may also be used.

c : The values are related to test pieces with a minimum gauge length of  $5.65\sqrt{S_0}$

d : Normally for thickness greater than 10mm, and depend on the requirement of customer.

e : When tested according to EN ISO 3651-2.

Resistance to inter-granular corrosion is normally given for thicknesses up to 6 mm, and depends on the requirement of customer.

**(c) Surface Finish for Sheet**

**Table 3.1 Requirements of Surface Finish for Sheet**

Product Form	Treatment	Description	Surface condition	Code of Finish		
				EN 10028-7 Table 6	ASTM 480 (11.1)	TE
<b>Hot Rolled Coil</b>	Hot rolled, not heat treated, not descaled	Suitable for products which are to be further worked e.g. strip for rerolling	Covered with rolling scale	<b>1U</b>		<b>BHR</b>
	Hot rolled, heat treated, pickled	Usually standard for most steel types to ensure good corrosion resistance; also common finish for further processing. It is permissible for grinding marks to be present. Not as smooth as 2D or 2B.	Free of scale	<b>1D</b>	No. 1	<b>No. 1</b>
<b>Cold Rolled Coil</b>	Cold-rolled, heat treated, pickled	Finish for good ductility, but not as smooth as 2B or 2R.	Smooth	<b>2D</b>	No. 2D	<b>2D</b>
	Cold-rolled, heat treated, pickled, skin passed	Most common finish for most steel types to ensure good corrosion resistance, smoothness and flatness. Also common finish for further processing. Skin passing may be by tension leveling.	Smoother than 2D	<b>2B</b>	No. 2B	<b>2B</b>
	Cold-rolled, bright, annealed	Smoother and brighter than 2B. Also common finish for further processing.	Smooth, bright, reflective	<b>2R</b>	<i>Bright Annealed Finish</i>	<b>BA</b>